

I claim:

1. A system for communicating an event status across a data channel, comprising in combination:

a data path to provide connectivity for a plurality of communication channels using data transport protocols;

5 an originating device coupled to a first location on the data path, the originating device operable to set an event status indicator in a control portion of a data unit, the originating device operable to communicate a data signal as one or more data units on a data channel, the data channel being one of the plurality of communication channels supported on the data path; and

10 a receiving device coupled to a second location on the data path, the receiving device operable to detect the event status indicator in the control portion of the data unit, the receiving device operable to convert the one or more data units communicated on the data channel to a recovered data signal, the data path linking the originating device to the receiving device, the event status indicator
15 identifying an event status.

2. The system of Claim 1, wherein the originating device further comprises an encapsulation module operative to convert the data signal into the one or more data units.

3. The system of Claim 1, wherein the receiving device further comprises a decapsulation module operative to convert the one or more data units into the recovered data signal.

4. The system of Claim 1, wherein the data signal and the recovered data signal are constant bit rate signals.

5. The system of Claim 1, wherein the data signal and the recovered data signal include constant bit rate data, wherein the originating device and the receiving device are ATM devices and the data channel is an ATM channel, wherein the originating device further comprises an ATM encapsulation module operative to convert the data signal into the one or more data units, wherein the receiving device further comprises an ATM decapsulation module operative to convert the one or more data units into the recovered data signal, and wherein the data units are ATM cells.

6. The system of Claim 5, wherein the ATM encapsulation module includes an ATM AAL1 encapsulation block and the ATM decapsulation module includes an ATM AAL1 decapsulation block.

7. The system of Claim 6, wherein the control portion is a SAR PDU header.

8. The system of Claim 7, wherein the event status indicator is selected from the group consisting of an out of sequence SAR PDU header, a corrupted SAR PDU header, a corrupted and irrecoverable SAR PDU header, a parity bit in the SAR PDU header, a CRC field in the SAR PDU header, and a parity bit and CRC field in the SAR PDU header.

9. The system of Claim 1, wherein the originating device includes an event status injector operable to set the event status indicator in the control portion of the data unit, and wherein the receiving device includes an event status detector operable to detect the event status indicator in the control portion of the data unit.

10. The system of Claim 1, wherein the event status is selected from the group consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.

11. In an ATM device operable to transmit ATM cells via an ATM connection to a receiving ATM device, an apparatus for communicating an event status, comprising in combination:

an event status sensor operable to determine an event status;

5 an encapsulation module operative to convert a data signal into one or more ATM cells;

an event status injector operable to set an event status indicator in a control portion of an ATM cell, the event status indicator signaling the event status; and

10 a transmitter for communicating the ATM cell onto the ATM connection.

12. The system of Claim 11, wherein the data signal is a constant bit rate signal.

13. The system of Claim 12, wherein the encapsulation module includes an ATM AAL1 encapsulation block.

14. The system of Claim 13, wherein the control portion is a SAR PDU header.

15. The system of Claim 14, wherein the event status indicator is selected from the group consisting of an out of sequence SAR PDU header, a corrupted SAR PDU header, a corrupted and irrecoverable SAR PDU header, a parity bit in the SAR PDU header, a CRC field in the SAR PDU header, and a parity bit and CRC field in the SAR PDU

5 header.

16. The system of Claim 11, wherein the event status is selected from the group consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.

17. In an ATM device operable to receive ATM cells via an ATM connection from an originating ATM device, an apparatus for determining an event status, comprising in combination:

a receiver for accepting an ATM cell from the ATM connection;

5 a decapsulation module operative to convert the ATM cell received from the originating ATM device on the ATM connection into a recovered data signal, the ATM cell transmitted by the originating ATM device, the ATM cell including an event status indicator in a control portion of the ATM cell, the event status indicator set by the originating ATM device and indicating an event status;

10 an event status detector operable to detect the event status indicator in the control portion of the ATM cell; and

an event status decoder operable to decode the event status indicator to determine an event status.

18. The system of Claim 17, wherein the recovered data signal is a constant bit rate signal.

19. The system of Claim 18, wherein the decapsulation module includes an ATM AAL1 decapsulation block.

20. The system of Claim 19, wherein the control portion is a SAR PDU header.

21. The system of Claim 20, wherein the event status indicator is selected from the group consisting of an out of sequence SAR PDU header, a corrupted SAR PDU header, a corrupted and irrecoverable SAR PDU header, a parity bit in the SAR PDU header, a CRC field in the SAR PDU header, and a parity bit and CRC field in the SAR PDU header.

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22. The system of Claim 17, wherein the event status is selected from the group consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.

23. A method for communicating an event status across a data channel, comprising in combination:

determining an event status at an originating device;

setting an event status indicator in a control portion of a data unit at the

5 originating device, the event status indicator identifying an event status, the data unit communicating a data signal;

transmitting the data unit on a data channel from the originating device to a receiving device, the data channel being one of a plurality of communication channels supported on a data path using data transport protocols, the data path
10 linking the originating device to the receiving device; and

detecting the event status indicator in the control portion of the data unit at the receiving device.

24. A computer readable medium having stored therein instructions for causing a processing unit to execute the method of Claim 23.

25. The method of Claim 23, further comprising the step of converting the data signal into the data unit at the originating device.

26. The method of Claim 25, further comprising the step of converting the data unit into a recovered data signal at the receiving device.

27. The method of Claim 26, wherein the data signal and the recovered data signal are constant bit rate signals.

28. The method of Claim 23, further comprising the step of converting the data unit into a recovered data signal at the receiving device, wherein the data signal and the recovered data signal include constant bit rate data, wherein the originating device and the receiving device are ATM devices and the data channel is an ATM channel, wherein
5 the originating device comprises an ATM encapsulation module operative to convert the data signal into one or more data units, wherein the receiving device comprises an ATM decapsulation module operative to convert the one or more data units into the recovered data signal, and wherein the data units are ATM cells.

29. The method of Claim 28, wherein the ATM encapsulation module includes an ATM AAL1 encapsulation block and the ATM decapsulation module includes an ATM AAL1 decapsulation block.

30. The method of Claim 29, wherein the control portion is a SAR PDU header.

31. The method of Claim 30, wherein the event status indicator is selected from the group consisting of an out of sequence SAR PDU header, a corrupted SAR PDU header,

a corrupted and irrecoverable SAR PDU header, a parity bit in the SAR PDU header, a
CRC field in the SAR PDU header, and a parity bit and CRC field in the SAR PDU
5 header.

32. The method of Claim 23, wherein the originating device includes an event status
injector operable to set the event status indicator in the control portion of the data unit,
and wherein the receiving device includes an event status detector operable to detect the
event status indicator in the control portion of the data unit.

33. The method of Claim 23, wherein the event status is selected from the group
consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.

34. In a first ATM device operable to transmit ATM cells via an ATM connection to
a second ATM device, a method for communicating an event status, comprising in
combination:

5 setting an event status indicator in a control portion of an ATM cell, the
event status indicator signaling an event status detected at the first ATM device;

and

transmitting the ATM cell across the ATM connection to the second ATM
device.

35. A computer readable medium having stored therein instructions for causing a
processing unit to execute the method of Claim 34.

36. The method of Claim 34, further comprising the step of determining an event status.

37. The method of Claim 34, further comprising the step of converting a data signal into the ATM cell.

38. The method of Claim 37, wherein the data signal is a constant bit rate signal.

39. The method of Claim 37, wherein the data signal is converted into the ATM cell by an ATM AAL1 encapsulation block.

40. The method of Claim 39, wherein the control portion is a SAR PDU header.

41. The method of Claim 40, wherein the event status indicator is selected from the group consisting of an out of sequence SAR PDU header, a corrupted SAR PDU header, a corrupted and irrecoverable SAR PDU header, a parity bit in the SAR PDU header, a CRC field in the SAR PDU header, and a parity bit and CRC field in the SAR PDU

5 header.

42. The method of Claim 34, wherein the event status indicator is set by an event status injector.

43. The method of Claim 34, wherein the event status is selected from the group consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.

44. In a first ATM device operable to receive ATM cells via an ATM connection from a second ATM device, a method for determining an event status, comprising in combination:

receiving an ATM cell across the ATM connection, the ATM cell

5 originating at the second ATM device;

detecting an event status indicator in a control portion of the ATM cell, the event status indicator signaling an event status detected at the second ATM device; and

decoding the event status indicator to determine an event status.

45. A computer readable medium having stored therein instructions for causing a processing unit to execute the method of Claim 44.

46. The method of Claim 44, further comprising the step of converting the ATM cell into a recovered data signal.

47. The method of Claim 46, wherein the recovered data signal is a constant bit rate signal.

48. The method of Claim 46, wherein the ATM cell is converted into the recovered data signal by an ATM AAL1 decapsulation block.

49. The method of Claim 48, wherein the control portion is a SAR PDU header.

50. The method of Claim 49, wherein the event status indicator is selected from the group consisting of an out of sequence SAR PDU header, a corrupted SAR PDU header, a corrupted and irrecoverable SAR PDU header, a parity bit in the SAR PDU header, a CRC field in the SAR PDU header, and a parity bit and CRC field in the SAR PDU

5 header.

51. The method of Claim 44, wherein the event status indicator is detected by an event status detector.

52. The method of Claim 44, wherein the event status is selected from the group consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.

53. The method of Claim 44, wherein the event status is selected from the group consisting of a FIFO overflow condition, a FIFO underflow condition, and a line status.